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09/942,173	08/30/2001	Tsutomu Yamazaki	011350-284	6797

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EXAMINER

LAROSE, COLIN M

ART UNIT	PAPER NUMBER
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2624

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/24/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

09/942,173

Applicant(s)

YAMAZAKI, TSUTOMU

Examiner

Colin M. LaRose

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 9-32, 35 and 36 is/are rejected.
- 7) ☒ Claim(s) 7, 8, 33 and 34 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Arguments and Amendments

1. Applicant's amendments and arguments filed 20 October 2006, have been entered and made of record.

Response to Arguments and Amendments

2. Applicant has amended independent claims 1, 14, 24, and 27 to provide for "grouping all the colors in the first image data into groups of approximately equal colors and comparing each of the first image data groups of colors to all the colors of the second image data." Thereafter, a "uniform adjusting color" is specified. This color is operative to "make the first image data recognizable against all colors of the second image that serve as the first image data's background."

Applicant asserts that such an amendment overcome Bates because Bates deals with determining *the* foreground color of a foreground (i.e. text) and compares *the* foreground color to the colors of the background (see Remarks, p. 16). The apparent contention is that the claimed invention analyzes a multi-colored foreground image and specifies a "uniform adjusting color" on the basis of the multiple foreground colors, whereas Bates is limited to dealing with only a single foreground color.

After careful consideration, these arguments are not persuasive for the following reasons.

Figure 3 of Bates illustrates a method for correcting color contrast problems when a foreground object (such as text) is overlaid on a background object (such as an image). The colors of the two superposed objects may be so similar that they cause contrast problems and

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inhibit the readability of the foreground text. Therefore, Bates ascertains the colors of the foreground and background objects and then compares those colors to determine a new color combination with reduced contrast problems.

At step 307, the color of a background object is determined. At step 320, a foreground (text) object's color is determined. Then method then proceeds to step 325 where the colors are used to access predetermined criteria for determining whether a contrast problem exists. The method in figure 3 appears to relate to only one foreground color in relation to one background color. However, Bates does provide additional details for the situations in which the foreground and/or background objects contain multiple colors.

Figure 5 shows a method employed during steps 307 and 320 for determining the colors of a foreground or background object (see columns 12/12-15 & 20/26-30). The method shown in figure 5 analyzes an object and categorizes the color of each pixel of the object into one of several color categories. Once all the pixels in the object have been categorized, the top "n" color categories are utilized to denote the dominant colors of the object. Of course, if the designated value "n" is large enough or conversely the number of different categories is small enough, then the top "n" colors will encompass *all* of the colors in the object. Each of these categorized colors (or at least the top "n" colors) is utilized in determining whether contrast problems exist in relation to the background color(s).

Once the colors of the background and foreground objects are ascertained, then the colors of each of the objects are compared to determine whether contrast problems exist (column 4/21-33).

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows:

Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data.

When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and *Warmerdam*, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) with *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).

In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See *Lowry*, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

4. Claims 14-22 rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claims 14-22 define a "storage device" embodying functional descriptive material. However, the claim does not define a computer-readable medium or memory and is thus non-statutory for that reason (i.e., "When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized" – Guidelines Annex IV). That is, the scope of the presently claimed invention can range from paper on which the program is written, to a program simply contemplated and memorized by a person. The examiner suggests amending the claim to embody the program on "computer-readable medium" or equivalent (rather than a "storage device") in order to make the claim statutory. Any amendment to the claim should be commensurate with its corresponding disclosure.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-3, 9, 11, 14-16, 22-29, and 35 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 6,809,741 by Bates et al. ("Bates").

Regarding claims 1, 14, 24, and 27, Bates discloses an image processing device/method/program comprising:

a first color detection means for detecting colors of a first image data by each processing unit (computer 100 detects the colors of the pixels ("processing units") for a text object – see step 320, figure 3);

a second color detection means for detecting colors of a second image data that serves as the first image data's background by each processing unit, the second image data having a plurality of different colors (computer 100 detects the colors of the pixels for the background – see step 307, figure 3; see also figure 5); and

means (computer 100) for:

grouping all the colors in the first image data into groups of approximately equal colors (see figure 5 and columns 12/12-15 & 20/26-30: when there are multiple colors in a text object, the colors within the object are categorized into groups according to color) and comparing each of the first image data groups of colors to all the colors of the second image

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data (column 4/21-33; column 5/44-49; also figure 3, step 325: the color(s) in the text object and the color(s) background object are compared by accessing pre-stored user preferences, such as shown in figure 7), and

specifying a uniform adjusting color that makes the first image data recognizable against all colors of the second image data that serve as the first image data's background (i.e. when the text and background colors exhibit a contrast problem (step 330), a new color for the text and/or background (“uniform adjusting color(s)”) are generated at step 335 – see also figure 7; see also column 21, lines 36-62 where “all” the colors of the second image data are utilized regardless of the number thereof).

Regarding claims 2, 15, 25, and 28, Bates discloses an image processing device/method/program as claimed in claims 1, 14, and 24, further comprising: an image synthesizing means for synthesizing the first image data converted into said adjusting color with said second image data (i.e. computer 100 synthesizes the text image data that has been converted to a new color with the background image data).

Regarding claims 3, 16, 26, and 29, Bates discloses an image processing device/method/program as claimed in claims 1, 14, and 24, wherein said processing unit is a pixel (i.e. the image data may be in a GIF or JPEG format and therefore, consists of pixels – see e.g. column 12, lines 2-6).

Regarding claims 9, 22, and 35, Bates discloses an image processing device/program as claimed in claims 1 and 14, wherein said first image data is an image data that represents character images (i.e. first image data is text).

Regarding claims 11 and 23, Bates discloses preparing an electronic file based on the image data synthesized by the image synthesizing means (e.g. a new HTML file is created with the new color combinations – see column 16, lines 18-22).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 4, 6, 10, 17, 19, 30, 32, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,809,741 by Bates et al. (“Bates”) in view of Translation of Japanese Patent 09-025285A by Honda (“Honda”).

Regarding claims 4, 17, and 30, Bates discloses an image processing device/program as claimed in claims 1 and 14, further comprising:

a first memory means (120) for storing the colors of the first image data by each of the approximately equal colors (i.e. the values of the detected colors are necessarily stored somewhere in memory); and

a second memory means (120) for storing the colors of the second image data that serves as the first image data's background, said colors of which are correlated to each of the corresponding colors of the first image data that are stored in said first memory means (i.e. the values of the detected colors are necessarily stored somewhere in memory, and those colors of the background object are correlated, or correspond, to the text colors that are overlaid thereon);

Bates teaches that one way of determining the background or foreground colors is through an histogram accumulation method, such as shown in figure 5. However, Bates is silent to calculating average values of the background image data (i.e. the second image data), and using the average background color and the text color to determine the uniform adjusting color, as claimed.

Honda discloses an image processing system that makes text more legible by altering the colors of the text so that it exhibits higher contrast as compared with the background on which the text is overlaid. In particular, Honda discloses basing the determination of the new text color on the average of the background colors (page 5 of Honda: "overlay pixel value determination circuit ... computes the average pixel value (density value) of a certain region [of the background image]"). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Bates by Honda to calculate the average value of the background colors per Honda's teachings and determine the uniform adjusting color based on the colors of the first image data (i.e. the text object) and the average of the second image data (i.e. background colors), since Bates teaches that the manner of detecting the colors of objects is well-known in the art (column 12, lines 10-13), and Honda discloses that one technique for determining a background color is to compute the average of color values in the background. Bates' uniform adjusting color would then be based on the detected text object colors and the average color values of the background.

Regarding claims 10 and 36, Bates discloses an image processing device as claimed in claim 1, further comprising: a third memory means for storing said second image data (i.e. memory 120).

Regarding claims 6, 19, and 32, Honda discloses an image processing device/program as claimed in claims 4 and 17, wherein said average color value calculating means calculates the average value of the coordinate values of the colors of the second image data in a specified color system (page 5 of Honda: “overlay pixel value determination circuit ... computes the average pixel value (density value) of a certain region [of the background image]” – this computation is done in the RGB color system).

9. Claims 5, 18, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,809,741 by Bates et al. (“Bates”) in view of Translation of Japanese Patent 09-025285A by Honda (“Honda”), and further in view of U.S. Patent 5,930,385 by Fujimoto et al. (“Fujimoto”).

Regarding claims 5, 18, and 31, Bates and Honda is silent to a judging means for judging that colors of the first image data are approximately equal when a sum of squares of the differences of their coordinate values in a specified color system is less than a specified value. Bates, for instance, equates two colors when the colors are within a certain range (see delta values, figure 7)

Fujimoto discloses an image processing system adapted to perform a color conversion on an input image, such as converting a color image to a monochrome image. Figure 2 shows a method for such conversion. Figure 3 shows the process of region dividing, which is included in the method of figure 2. In dividing the image into color regions, it is determined whether adjacent pixels have the same color at step 2-3. As figure 8 shows, determining whether two

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colors are the same involves determining whether the sum of squares of a difference in color values is less than a threshold.

It would have been obvious to modify Bates and Honda by Fujimoto to include means to judge the similarity of input character colors, as claimed, since Fujimoto discloses that generating monochrome text involves judging the similarity of colors based on the sum of squares of the differences of coordinate values in relation to a threshold.

10. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,809,741 by Bates et al. ("Bates") in view of U.S. Patent 5,872,573 by Adegeest.

Regarding claim 12, Bates does not expressly disclose obtaining the first and second image data via a scanner, as claimed.

Adegeest discloses a system for producing legible text to be overlaid on a background, similar to that of Bates. In particular, Adegeest discloses that it is conventional to obtain input images via a scanner for the purposes of adjusting text and background so that the text is more legible against the background. It would have been obvious to modify Honda by Adegeest to input the second image via a scanner, as claimed, since Adegeest shows that it was conventional to input images by electronically scanning documents with a scanner.

Regarding claim 13, Bates is silent to a printer unit for printing images on recording media based on the synthesized image data.

Adegeest discloses a system for producing legible text to be overlaid on a background, similar to that of Bates. In particular, Adegeest discloses that it is conventional to output processed images via a printer 23, figure 1. It would have been obvious to modify Honda by

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Adegeest to output the synthesized image via a scanner, as claimed, since Adegeest shows that it was conventional to output images using a printer.

Allowable Subject Matter

11. Claims 7, 8, 20, 21, 33, and 34 would be allowable if rewritten to include all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Colin M. LaRose whose telephone number is (571) 272-7423. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta, can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000. Any inquiry

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of a general nature or relating to the status of this application or proceeding can also be directed to the TC 2600 Customer Service Office whose telephone number is (571) 272-2600.



Colin M. LaRose
Group Art Unit 2624
22 January 2007